TECHNOLOGICAL STUDIES ON UTILIZATION OF FOOD WASTES IN SOME BAKERY PRODUCTS

BY

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A thesis submitted in partial fulfillment

of

the requirements for the degree of

MASTER OF SCIENCE

in

Agricultural Sciences

(Food Science - Food Technology)

Department of Food Science

Faculty of Agriculture

Zagazig University

2020

ABSTRACT

This study was carried out to evaluate the chemical and physical properties of some by products including (tomato pomace powders (TPP), mango seeds kernel powder (MSKP) and pomegranate peels powder (PPP). Also studied the effect of substitution of wheat flour with 2.5, 5.0, 7.5 and 10.0 % of (TPP), (MSKP) and (PPP) on chemical, physical, sensory, baking properties and the acceptability of cake and biscuit. Results showed that, wheat flour recorded the higher moisture and total carbohydrate contents. Tomato pomace powder recorded the higher crude protein and crude fiber contents.While mango seeds kernel powder had the highest lipids content and pomegranate peels powder had the highest ash and crude fiber content. For total phenolic and flavonoid content, TPP contain the highest total phenolic and flavonoid content followed by PPP and finally MSKP. Also, the partial replacement of wheat flour with TPP, MSKP and PPP increased chemical composition % (moisture, crude protein, lipids, ash and crude fiber), minerals content (i.e. K, Ca, Mg, Na, Mn, Fe and Zn), dietary fiber content (i.e. total, soluble and insoluble dietary fiber) of cake and biscuit samples, while total carbohydrates were decreased in parallel with increasing the level of substitution compared with control cake samples. Cake and biscuit sample treatments containing TPP, MSKP and PPP have also recorded the same trend of chemical composition, minerals, dietary fiber content. The partial replacement of wheat flour with TPP, MSKP and PPP increased total phenolic and flavonoid content of cake and biscuit samples compared with control samples in parallel with

increasing the level of substitution .Cake and biscuit treatments containing TPP had the highest total phenolic and flavonoid content followed by PPP and finally MSKP. Also**,** the partial replacement of wheat flour with TPP, MSKP and PPP increased cake and biscuit weight while volume and specific volume were decreased in parallel with increasing the level of substitution. The addition of TPP, MSKP and PPP can cause decrease in lightness of the cakes. In case of redness (a) it was found that TPP substitution level 10 % was the most-red. Yellowness (b), it was found that MSKP substitution level 2.5 % was the most yellow. Concerning substitution with TPP and MSKP, all the sensory evaluation characters, cells, grain, texture, crumb color, flavor and overall acceptability, have no significant difference between the control sample and cake and biscuit samples which substituted with 2.5, 5 and 7.5 % of MSKP and TPP**.**

Keywords: Cake - Biscuit - By products - Tomato pomace powder - Mango seeds kernel - Pomegranate peels powder - Dietary fiber - Phenolic and flavonoid content.

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